

19 FRENCH REPUBLIC

NATIONAL INSTITUTE
OF INDUSTRIAL PROPERTY

PARIS

11 **Publication No.:** **2 660 740**

(to be used only for orders for
copies)

21 **National Registration No.** **91 04111**

51 **Int. Cl.⁵:** **F 25 D 25/02**

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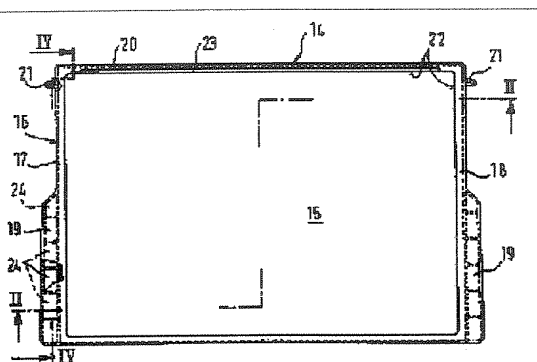
APPLICATION FOR PATENT OF INVENTION

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22	Date of application: 04 April 1991.	71	Applicant(s): <i>Company named: BOSCH-SIEMENS HAUSGERÄTE GMBH - DE.</i>
30	Priority: 10 April 1990, DE 9004180.	72	Inventor(s): Roland Maier, Hans Janssen and Hans Althammer.
43	Date application laid open to public inspection: 11 October 1991, Bulletin 91/41.	73	Owner(s):
56	List of documents cited in the search report: <i>The search report was not established as of the date of publication of the application.</i>	74	Agent: Bureau D.A. Casalonga Josse.
60	References to other related national documents:		

54 **Refrigerator, especially household refrigerator cabinet.**

57 The invention relates to height-adjustable removable shelves mounted inside a refrigerator. The shelves are formed from a glass plate (15) surrounded by a closed frame (16) of plastic material. Elements (19, 21) forming projections laterally on the lateral edges (17, 18) of the frame are engaged between the support tracks inside the refrigerator.



REFRIGERATOR, ESPECIALLY HOUSEHOLD REFRIGERATOR CABINET

The invention relates to a refrigerator, especially a household refrigerator cabinet provided with a thermally insulating body, inside which removable shelves of transparent material are mounted with the possibility of adjustment of the height thereof between support tracks forming projections on the lateral walls.

In refrigerators of the indicated known type, there has recently developed a growing trend to use shelves of transparent plastic material or glass plates instead of trays. Although the shelves of transparent plastic material deform easily and can break under a heavy load, requiring that they must be reinforced by means of an additional support frame, it is necessary in the use of glass plates to equip at least their front edge with a fitted impact-resistant trim. The other free edges must be carefully ground in order to eliminate any risk of injury on sharp edges. Whereas in the first case the additional support frame, most often made of steel wire, is the cause of additional

costs, the grinding of the edges necessary with glass plates constitutes a costly operation in the second case.

In a known refrigerator equipped with glass plates as shelves for the products to be stored, it is common to equip their front and rear edges with fitted profile sections of plastic material. Their lateral edges are equipped with guide elements in the form of pins or tabs, which engage between the support tracks forming projections on the lateral walls of the body. Given that these molded parts easily become detached from the edges of the glass plates with which they are associated, it is necessary in this case also, in order to avoid injuries, to grind all sharp edges - including those covered by the molded parts - of the glass plate perfectly. This results in an undesired increase of the costs of producing shelves.

The objective of the present invention is to improve the shelves of refrigerators of the type indicated hereinabove by simple means and thus to enhance the utility value of the appliances.

According to the present invention, the problem is solved by making the shelves in the form of glass plates and surrounding them with a closed frame of plastic material, which can be engaged by overhanging lateral projections between the support tracks in the body.

With shelves produced according to the invention in the form of glass plates surrounded by a closed frame of plastic material, they can be made in particularly simple and economic manner. In addition, the glass plates surrounded by a closed frame of plastic material according to the invention are safe and robust in use.

In addition, according to a preferred embodiment of the object of the invention, when the frame of plastic material is

formed by molding onto the glass plate, the handling of the shelves is particularly simple and safe.

According to another advantageous embodiment of the invention, the frame of plastic material is equipped in the front zone of its lateral edges with laterally overhanging guide tabs, while pins forming projections laterally are disposed in the proximity of the rear edge and are engaged between the support tracks in the body.

In another advantageous embodiment of the object of the invention, it has proved particularly advantageous for use of the shelves that the frame of plastic material forms a peripheral rim on the upper face of the glass plate.

In this way, if liquids stored in containers are carelessly stacked, it is ensured in simple manner that they cannot spill over the edge of the shelf and flow downward. In this case, the refrigerator walls would be soiled and the products stacked on the shelf situated below would be soaked.

In order to ensure that the product to be stored does not come into contact with the rear wall of the thermally insulated body and in some cases become bonded to the evaporator when it is pushed onto the shelf, it is provided according to another advantageous improvement of the invention that the shelves are equipped at their rear edge with a bumper forming an upward projection on their edge.

The invention is described hereinafter by means of a practical example of a household refrigerator cabinet illustrated in simplified manner in the attached drawing, provided with glass plates surrounded by a closed frame of plastic material as shelves.

Fig. 1 shows the household refrigerator cabinet in perspective, with the door open, equipped with shelves disposed between support tracks forming projections on the lateral walls inside the body, which shelves have the form of glass plates surrounded by a closed frame of plastic material.

Fig. 2 shows a shelf in end-on view on a larger scale than in Fig. 1, in section through line II-II of Fig. 3.

Fig. 3 shows the shelf in top view, parts of the frame of plastic material being cut away in order to reveal the structural details.

Fig. 4 shows the shelf in side view and again enlarged compared with Figs. 2 and 3, in section through line IV-IV of Fig. 3.

A refrigerator cabinet 10 is equipped as usual with a thermally insulating body 11, which can be closed by a door 12. Inside body 11, shelves 14 for products to be stored are mounted between horizontal support tracks 13 forming projections on the lateral walls, the shelves being mounted between support tracks 13 in such a way that they can be removed and their height can be adjusted.

As follows in particular from Figs. 2 to 4, shelves 14 are made in the form of glass plates 15, which are surrounded by a closed frame 16 of plastic material. Frame 16 of plastic material, with lateral edges 17 and 18, is equipped in the front part thereof with overhanging lateral projections in the form of guide tabs 19, which can be engaged between support tracks 13. At its rear sharp edge, frame 16 of plastic material is equipped with an edge 20, at the ends of which pins 21 form projections on lateral edges 17 and 18. They also can be engaged between support tracks 13 on the interior walls of body 11. The edges of frame 16

of plastic material, made in one piece in the form of U-shaped profile sections, form a peripheral straight edge 22 on the upper face of glass plate 15, which edge retains liquids spilled on glass plate 15 and thus prevents them from flowing down past the rim. Frame 16 of plastic material is additionally equipped on its rear edge 20 with a bumper 23 forming an upward projection on edge 22, which bumper prevents the product stored on shelf 14 from being pushed too far to the rear and coming into contact with the rear wall of body 11.

As shown more particularly in Figs. 3 and 4, the laterally overhanging guide tabs of lateral edges 17 and 18 of frame 16 of plastic material are equipped with chambers 24 on their lower face, which endow guide tabs 19 with sufficient strength while limiting the quantity of material used.

CLAIMS

1. A refrigerator, especially a household refrigerator cabinet, provided with a thermally insulating body, inside which removable shelves of transparent material are disposed with the capability of adjustment of the height thereof between support tracks or the like forming projections on the lateral walls, characterized in that the shelves (14) are made in the form of glass plates (15) and are surrounded by a closed frame (16) of plastic material, which frame can be mounted by overhanging lateral projections (19, 21) between the support tracks (18) in the body (11).

2. A refrigerator according to claim 1, characterized in that the frame (16) of plastic material is formed by molding onto the glass plate (15).

3. A refrigerator according to claim 1 or 2, characterized in that the frame (16) of plastic material is equipped in the front zone of its edges (17, 18) with laterally overhanging guide tabs (19), while pins (21) forming projections laterally are disposed in the proximity of the rear edge (20) and are engaged between the support tracks (13).

4. A refrigerator according to any one of claims 1, 2 or 3, characterized in that the frame (16) of plastic material forms a peripheral rim (22) on the upper face of the glass plate (15).

5. A refrigerator according to claim 4, characterized in that the frame (16) of plastic material is equipped on its rear edge (20) with a bumper (23) forming a projection vertically on the rim (22).

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